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Risk Factors, Health Behaviors, and Injury Among Adults Employed in the Transportation, Warehousing, and Utilities Super Sector

James C. Helmkamp, PhD, MS[1,*], **Jennifer E. Lincoln, MSSM**[2], **John Sestito, JD, MS**[3], **Eric Wood, MD MPH**[4], **Jan Birdsey, MPH**[3], and **Max Kiefer, CIH, MS**[1]

[1]Western States Office, Centers for Disease Control and Prevention, National Institutefor Occupational Safety and Health, Denver, Colorado

[2]Division of Safety Research, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Morgantown, West Virginia

[3]Division of Surveillance, Hazard Evaluations, and Field Studies, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Cincinnati, Ohio

[4]Rocky Mountain Center for Occupational and Environmental Medicine, University of Utah, Salt Lake City, Utah

Abstract

Background—The TWU super sector is engaged in the movement of passengers and cargo, warehousing of goods, and the delivery of services. The purpose of this study is to describe employee self-reported personal risk factors, health behaviors and habits, disease and chronic conditions, and employer-reported nonfatal injury experiences of workers in the TWU super sector.

Methods—National Health Interview Survey (NHIS) data for 1997–2007, grouped into six morbidity and disability categories and three age groups, were reviewed. Demographic characteristics and prevalence estimates are reported for workers in the TWU super sector and the entire U.S. workforce, and compared with national adult population data from the NHIS. Bureau of Labor Statistics employer-reported TWU injury data from 2003 to 2007 was also reviewed.

Results—An average of 8.3 million workers were employed annually in the TWU super sector. TWU workers 65 or older reported the highest prevalence of hypertension (49%) across all industry sectors, but the 20% prevalence is notable among middle age workers (25–64). TWU workers had the highest prevalence of obesity (28%), compared to workers in all other industry sectors. Female TWU workers experienced the highest number of lost workdays (6.5) in the past year across all TWU demographic groups.

Conclusions—Self-reported high proportions of chronic conditions including hypertension and heart disease combined with elevated levels of being overweight and obese, and lack of physical

[*]Correspondence to: Dr. James C. Helmkamp, PhD, MS, Western States Office, National Institute for Occupational Safety and Health, Denver Federal Center, PO Box 25226, Denver, CO 80225. jch4@cdc.gov.

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activity—particularly among TWUs oldest workers—can meaningfully inform wellness strategies and interventions focused on this demographic group.

Keywords

transportation; warehousing; utilities; risk factors; health behaviors; disability measures; injury

INTRODUCTION

The National Institute for Occupational Safety and Health (NIOSH) initiated its National Occupational Research Agenda (NORA) in the mid-1990s as a partnership with industry to stimulate innovative research and workplace interventions. As NORA entered its second decade in 2006, an industry "sector-based" approach was adopted to facilitate the translation of research results to the workplace by those who were most knowledgeable about the problems and work environments within specific industry groups.

One of the NORA sectors is the Transportation, Warehousing, and Utilities (TWU) super sector [NIOSH, 2009a][i] which is made up of two parts: the transportation and warehousing sector (North American Industrial Classification System [NAICS] codes 48 and 49) and the utilities sector (NAICS code 22) [OMB, 2002]. The *transportation and warehousing* sector includes industries providing transportation of passengers and cargo, warehousing and storage for goods, scenic and sightseeing transportation, and support activities related to various modes of transportation. Establishments in these industries use transportation equipment or transportation-related facilities as a productive asset. The type of equipment depends on the mode of transportation or service (e.g., air, rail, water, truck, transit and ground passenger, pipeline, scenic and sightseeing, support services, postal service, couriers and messengers, and warehousing and storage). The *utilities* sector comprises establishments engaged in providing services, including electric power, natural gas, steam supply, water supply, and sewage removal. Activities within each of these services vary: electric power includes generation, transmission, and distribution; natural gas includes distribution; steam supply includes provision and distribution; water supply includes treatment and distribution; and sewage removal includes collection, treatment, and disposal through sewer systems and sewage treatment facilities. The national strategic agenda for TWU has multiple goals to address a variety of safety and health concerns for TWU workers, identified by NIOSH scientists and stake-holders representing government, industry, academia, labor, and research organizations [NIOSH, 2009a].

Recent studies within the TWU sector have focused on health and injuries among U.S. commercial drivers. A survey of long-distance truck drivers across the U.S. finds that access to healthcare is severely limited and poor health outcomes are common [Solomon et al., 2004]. A Washington state survey of trucking companies report that worker behavior frequently contributes to musculoskeletal and slip/trip/fall injuries, while a concurrent

[i]The term super sector refers to combinations of related NAICS sectors, such as the transportation/warehousing and utilities sectors, to distinguish it from individual sectors. Other NORA sectors making up the rest of the U.S. workforce (during the study timeframe of 1997–2007) included: agriculture, forestry, fishing, and hunting; mining; construction; manufacturing; healthcare and social assistance; wholesale and retail trade; and services.

survey of truck drivers suggests that physical conditions, such as slippery ramps and docks, are the primary causes of these types of injuries [Spielholz et al., 2008]. A comprehensive review of social, psychosocial, and health science literature related to the U.S. trucking population shows that truckers routinely and disproportionately experience a wide array of conditions directly related to their occupational contexts and consequential lifestyles [Apostolopoulos et al., 2010]. A review of a U.S. health insurer's medical claims data reports that local and interurban passenger transit workers have an elevated prevalence for hypertension, depression, cardiovascular disease, and diabetes compared to other occupational groups [Bushnell et al., 2011]. Two recent studies report that driver's self-assessed obesity, hypertension and diabetes contribute to their obstructive sleep apnea [Smith and Phillips, 2011; Xie et al., 2011]. A naturalistic (on-road) study of professional truck drivers indicates a link between obesity and fatigue, a major safety issue surrounding commercial motor vehicle operations given the long hours drivers spend on the road [Wiegand et al., 2009]. A series of reports sponsored by the U.S. Federal Motor Carrier Safety Administration (FMCSA) have explored a variety of factors including obesity, fatigue, diabetes, cardiovascular and heart disease, distracted driving, rest time, breaks and their potential impact on driver's health, and on safety-critical events including crashes and near-crashes [Krueger et al., 2007; Hickman et al., 2010; Blanco et al., 2011; Jovanis et al., 2011]. Finally, a 2010 NIOSH national survey of U.S. long-haul truck drivers at truck stops across the country reports that 26% of respondents are overweight (BMI 25.0-29.9), 64% obese (BMI ≥ 30.0), and 32% have hypertension [Sieber et al., 2012].

Several international studies describe health, behavior, and environmental issues in commercial drivers (e.g., bus, taxi, van, heavy truck) [Bigert et al., 2003; Tse et al., 2006; Tuchsen et al., 2006; Duke et al., 2010; van der Beek, 2012]. Other transportation and utility related studies have looked at health and injury in railway workers [Chau et al., 2010; Andres and Wade, 2012], marine transportation workers [Arrandale et al., 2009], and power line technicians [Parkhouse and Gall, 2004]. A number of studies look at various risk and demographic factors including age [Landen and Hendricks, 1992; Parkhouse and Gall, 2004; Fleming et al., 2007; Arrandale et al., 2009; Leigh and Du, 2009; Chau et al., 2010; Duke et al., 2010], gender [Landen and Hendricks, 1992; Leigh and Du, 2009], stress, fatigue, schedules, long hours, and seniority [Leigh and Du, 2009; Chau et al., 2010; Duke et al., 2010; Blanco et al., 2011; Jovanis et al., 2011; Bushnell et al., 2011], and personal habits and behavior [Tse et al., 2006; Fleming et al., 2007; Krueger et al., 2007; Arrandale et al., 2009; Martin et al., 2009; Wiegand et al., 2009; Smith and Phillips, 2011]. The first international conference on commercial driver health and wellness in November 2010 clearly points out that personal health, wellness, and fitness are critically important for truck drivers and bus and motor coach operators, and for their families; participants indicate that while financial return-on-investment is important from a business perspective, healthier drivers can lead to improved morale, lower driver turnover, reduced medical and workers' compensation costs, and increased roadway safety by decreasing accident risk [TRB, 2012]. Collectively, this broad array of U.S. and international studies identifies multiple demographic factors, personal lifestyle habits, and environmental conditions that continue to affect workers' long-term health in many transportation and utility industries.

Injury also impacts workers. In 2010, the transportation and warehousing sector had an incidence rate for nonfatal occupational injuries and illnesses of 5.2 cases per 100 full-time employees (FTEs) and the utilities sector had a rate of 3.1, compared to a rate of 3.5 for all private industry. Workers in several TWU sub-sector industries, including air transportation (8.1), couriers and messengers (7.2), and warehousing and storage (5.9), had higher rates of nonfatal injury and illness in the workplace, compared to other TWU sub-sectors and TWU as a whole [BLS, 2011].

While injury and a variety of health outcomes have been well studied in selected occupations within TWU (e.g., commercial drivers), this combination has not been addressed among *all* TWU workers. The purpose of this study is to utilize data from two independent sources—the National Health Interview Survey (NHIS) and the Bureau of Labor Statistics (BLS)—to describe employee self-reported personal risk factors, health behaviors and habits, disease and chronic conditions, and the employer-reported nonfatal injury experiences of workers in the TWU super sector.

METHODS

National Health Information Survey (NHIS)

The NHIS is a continuous multistage area probability survey of the U.S. adult civilian non-institutionalized population sponsored by the National Center for Health Statistics (NCHS). NHIS uses personal household interviews to collect cross-sectional data on a broad range of health indices, including disease, injury, impairment, and disability. A complete description of NHIS methodology is provided elsewhere [NCHS, 2006, 2012; NIOSH, 2012a]. The NHIS has been used as a focused source of health outcome data in a variety of recent industry- and occupation-related studies [Robinson et al., 2011; Dillon et al., 2002; Fleming et al., 2003; Kriebel et al., 2004; Gomez-Marin et al., 2005; Yassin, 2007; Tak and Calvert, 2008; Bang et al., 2009; Forrest and Cali, 2009; Vidal et al., 2009; Zhang et al., 2009; Lombardi et al., 2010; Luckhaupt et al., 2010; Arheart et al., 2011; Syamlal et al., 2011].

For the period 1997–2007, data for all employed NHIS participants 18 years or older were analyzed using the survey weights provided by the NCHS. All analyses (using the SUDAAN and SAS statistical packages in accordance with recommendations from Botsman and Jack [1995] and the NCHS [2007]) for NIOSH were performed by the Occupational Research Group (ORG) at the Miller School of Medicine, University of Miami. The selected 11-year inclusive timeframe reflects several practical considerations. First, the NHIS was completely redesigned after 2007 creating a “break” in series, which limits pooling data from previous years with more current data. Second, NIOSH announced its second decade of NORA in 2006, thereby creating a unique demand for relatively current data on morbidity among employed persons. Finally, the ORG had developed and maintains an ongoing analytical capacity focused on the NHIS data.

For this 11-year period, 196,924 of the adult survey participants were currently employed at the time of the household interview. Survey data made available to NIOSH through the ORG are grouped into six domains: demographic, health status, disability and physical

activity limitations, disease and chronic conditions, healthcare utilization, and health behaviors and habits; and into three age groups—18–24, 25–64, and ≥65 years of age.

Estimates of prevalence are presented as percentages and are reported for all U.S. workers and workers employed in the TWU super sector with comparisons made with the U.S. adult population [NCHS, 2009]. Ninety-five percent confidence (95% CI) intervals are calculated for the prevalence estimates in TWU and the total workforce using sample sizes and percentages listed in Table I; the *Z*-test is used to test proportional differences [Lilienfeld and Stolley, 1994].

Survey of Occupational Injuries and Illnesses (SOII)

The BLS SOII is an annual survey of approximately 230,000 U.S. private industry establishments which are required to record and report occupational injuries and illnesses by the Occupational Safety and Health Administration (e.g., OSHA Summary of Work-related Injuries and Illnesses [OSHA Form 300a]). Data collected through the scientifically selected probability sample of establishments includes the number of new nonfatal injuries and illnesses by industry and demographic data on injured workers, the nature of disabling conditions, and the event and source producing such conditions for cases that involve one or more days away from work [BLS, 2007].

The injury and illness data used in this study are tabulated from 2003 to 2007 using the BLS SOII case and demographic profiles database [BLS, 2003–2007]. Work-related injuries and illnesses by age group (e.g., 16–24, 25–64, and ≥65) are identified for TWU (NAICS codes 48–49, and 22) and the total U.S. workforce (all NAICS codes).

Current Populations Survey (CPS)

The CPS, a monthly survey of 50,000–60,000 households provided to NIOSH through a memorandum of understanding, collects information through personal and telephone interviews on workers by age, gender, race, ethnicity, educational attainment, marital status, occupation, industry, and other variables. The NIOSH subset of the CPS dataset is used to produce national estimates of employed persons using the statistical weight of each case. Employment estimates by industry for the three age groups are derived using the NIOSH subset of the CPS dataset [BLS, 2009]. Employment estimates are identified by age group for TWU and the entire U.S. workforce. To match the SOII database, CPS estimates for private employment are identified while the self-employed, government, and volunteers are removed.

Rates of nonfatal injury and illness cases involving days away from work for the 5-year period 2003–2007 are calculated per 10,000 workers for three age groups (i.e., 16–24, 25–64, and ≥65) across TWU and all NORA sectors. Rate ratios (RR) are used to compare rate differences between TWU and all industries, and age groups [Monson, 1990].

The original NHIS and SOII data used in this study are screened by BLS to protect survey respondents and are in the public domain. Therefore, a NIOSH Institutional Review Board approval was not required.

RESULTS

National Health Information Survey (NHIS)

Demographics—Approximately 8.3 million persons 18 years and older worked annually in the TWU super sector from 1997 through 2007; TWU accounts for 6.6% of the total U.S. workforce. Significantly more males comprise the TWU workforce (72%, $P \leq 0.01$) compared to the overall U.S. worker population (54%); males also dominate most other NORA sectors, with the exception of the Healthcare and Social Assistance sector where females hold 77% of the jobs, and the Wholesale and Retail Trade and Services sectors where the gender ratio is generally even. The TWU workforce have significantly higher proportions of blacks, workers aged 25–64, workers with a high school education or GED, and insured workers (all $P \leq 0.01$) compared to the same groups in the total workforce (Table I).

Health Status—A significantly higher proportion of TWUs youngest workers aged 18–24 (22%, $P \leq 0.01$)—as well as those in the total workforce (21%, $P \leq 0.01$)—report better health status than in the previous year compared to the other two age groups (12–18%). TWUs female workers (20% $P \leq 0.01$) indicate a significantly greater prevalence of better health status compared to males (17%). The number of mean lost workdays is higher for TWU (5, $P \leq 0.05$) compared to the entire workforce (4) and the overall U.S. adult population (4), with TWU females (6.5) and blacks (6.1) at notably elevated levels. The prevalence of ≥6 lost workdays are higher in all TWU, gender, race, and age groups compared to similar groups in the overall work-force. Meanwhile, the prevalence of 2–5 lost workdays is significantly lower among the oldest TWU workers (12%)—as well as the oldest workers in the U.S. work-force (14%)—compared to younger workers (26–29%) ($P \leq 0.01$). TWU females claim a considerably higher prevalence of ≥6 lost workdays (17% $P \leq 0.01$) compared to males (11%); this observation also holds for the entire workforce. TWU black workers also have a higher prevalence of ≥6 lost workdays (16%, $P \leq 0.01$) compared to workers of Other races (12%, Tables II and III).

Disability and Physical Activity Limitations

Female (26%), white (22%), and workers 65 years and older (44%), in both TWU and the overall workforce, report significantly higher proportions of physical limitations (each $P \leq 0.01$) compared to males (18–20%), Other races (15–19%), and the two younger age groups (11–22%). Similarly, these same demographic groups indicate a considerably greater prevalence of hearing difficulties, 32%, 14%, and 14%, respectively (each $P \leq 0.01$) compared to their counterparts. TWU male workers report the presence of hearing difficulties (16%, $P \leq 0.01$) nearly double that of females (9%, Tables II and III).

Disease and Chronic Conditions

With the exception of asthma (highest in the youngest workers), the oldest workers in both TWU and in the overall U.S. workforce report higher proportions of chronic disease conditions (i.e., hypertension, heart disease, cancer, and diabetes) compared to younger workers. Nearly half (47–49%) of TWUs and the overall workforce's oldest workers report a prevalence of hypertension between two and three times higher than that for all of TWU and

the total workforce (both $P \leq 0.01$) and the U.S. adult population (18–24%). Also, about one-fifth of middle age workers (25–64) report hypertension. The oldest workers in TWU and in the entire workforce indicate a prevalence of heart disease (21–23%, $P \leq 0.01$) about three and a half times the prevalence in the total workforce (6%) and double the prevalence in the U.S. adult population (11%). TWU male workers have a significantly higher prevalence of hypertension (22%, $P \leq 0.01$) compared to females (16%), while the gender proportion in the overall work-force is generally the same (17–18%, Tables II and III).

Healthcare Utilization

Significantly more TWU workers—as well as workers in the U.S. workforce—in the younger age groups (30–39%, $P \leq 0.01$) report not having seen their primary healthcare provider in over a year, about double the proportion of the oldest TWU workers (17%) and four times the proportion of the U.S. adult population (8%). Similarly, TWU male workers (36%, $P \leq 0.01$) report not having seen their primary healthcare provider more than double the proportion of TWU female workers (14%), with both proportions less than for the same groups in the entire U.S. workforce; 41% and 17%, respectively (Tables II and III).

More men (37–39%, $P \leq 0.01$)—in both TWU and the overall workforce—report not having seen their dentist in over a year compared to women (27–29%). Nearly one-quarter of the youngest workers in both TWU and the whole U.S. workforce indicate a higher prevalence of at least one or more visits to the emergency room over the past year compared ($P \leq 0.01$) to between 18–20% of all TWU and U.S. workers, and the U.S. adult population. Females in TWU and the entire U.S. workforce (13%, $P \leq 0.05$) report a higher proportion of surgery during the past year compared to males (9%, Tables II and III).

Health Behaviors and Habits

A significantly smaller proportion of workers aged 65 and older in both TWU and the overall workforce (11 and 15%, respectively; $P \leq 0.01$) report being current smokers compared to the younger age groups (24–28%). Similarly, the oldest workers also indicate significantly less current drinking (56–59%, $P \leq 0.01$) compared to younger workers (67–73%). While the oldest workers—both in TWU and in the overall workforce—report the highest prevalence of being overweight (BMI 25.0–29.9: 44% and 50%, respectively; $P \leq 0.01$) compared to younger workers (26–41%) and 35% of the U.S adult population, middle age workers (24–29%, $P \leq 0.01$) indicate significantly higher proportions of obesity (BMI ≥30.0: 24–29%, $P \leq 0.01$) compared to the other age groups (14–22%). Males—in both TWU and the entire workforce—report significantly higher proportions of being overweight (44–46%, $P \leq 0.01$) than females (27–28%) and slightly more obesity (24–29% and 22–23%, $P \leq 0.05$). Blacks report a significantly higher prevalence of obesity (31%, $P \leq 0.01$) compared to the Other races (14–27%). Finally, about three-quarters (74–78%, $P \leq 0.01$) of TWUs and the overall workforces' oldest workers report not meeting CDC's recommended physical activity guidelines compared to younger workers (58–67%) and the U.S. adult population (62%, Tables II and III).

Survey of Occupational Injuries and Illnesses (SOII)

SOII data for 2003–2007 show that the overall injury and illness incidence rate involving days away from work for the TWU sector (239 cases per 10,000 workers) is twice the total rate (115) for the entire U.S. workforce (RR = 2.1). When examining age-specific rates, TWU workers in each of the three age groups experience higher rates compared to workers in similar age groups in the overall U.S. workforce; 16–24: 240 versus 98, RR = 2.4; 25–64: 242 versus 120 RR = 2.0; and ≥65: 157 versus 82, RR = 1.9 (Table IV). Across the TWU super sector, overexertion (28%), contact with objects (21%) and falls (21%) are the most common events contributing to these higher rates.

DISCUSSION

Other NORA sectors (Wholesale and Retail Trade, Healthcare and Social Assistance, and Services) report on injuries, illnesses and fatalities using morbidity and mortality data sources primarily from the U.S. Bureau of Labor Statistics [NIOSH, 2009b; Anderson et al., 2010; NIOSH, 2011; Utterback et al., 2012]. This paper—combining BLS employer-reported injury data with NHIS worker self-reported information on personal risk factors and behaviors, disability measures, and diseases and chronic conditions—provides a comprehensive cross-sectional description of the health status of workers in the TWU super sector.

NHIS data comparisons suggest that TWU has a significantly higher proportion of several demographic groups (e.g., males, blacks, middle age workers, insured workers, and those with a high school education) compared to the overall U.S. workforce. In general terms, many of the TWU workers' health behaviors, chronic conditions, and self-view of health are similar to those reported for all workers and for the nation as a whole. For example, the three comparison groups (i.e., TWU, all U.S. workers, and the U.S. adult population) have similar proportions of hearing difficulties, those reporting better health than in the previous year, and about the same mean number of lost workdays. Also, group differences are relatively small for making an emergency room visit in the previous year, being a former smoker, and being obese. On the other hand, there are notable differences across the three comparison groups. For example, the proportion of TWU workers (95%) who self-report their health as excellent/good—while the same as the overall workforce—is higher than the proportion observed for the U.S. adult population (87%). About three-quarters of TWU workers, as well as of all workers, self-report themselves as current drinkers, compared to less than two-thirds of the national adult population.

Age group differences in the prevalence of several health and injury measures are also observed across the three comparison groups. For example, the prevalence of 2–5 lost workdays—in TWU as well as in all workers—steadily decrease and show more variation as workers get older, compared to the smaller range observed across the age groups for ≥6 lost workdays; note that approximately 12% of TWUs oldest workers report both 2–5 and ≥6 lost workdays. The BLS SOII data show that the rate of cases of illness and injury requiring days away from work in TWU (239) is over double the rate observed for the overall workforce (115) suggesting that, in general, work in the TWU sector may be more likely to collectively cause injuries and illnesses than work in the other industry sectors. This

difference may be due, at least in part, to the rates experienced across TWUs sub-sector industries, especially when viewed from an age group perspective, where rate ratios range from 1.9 to 2.4. A brief review of TWU sub-sector data shows elevated rates (in various age groups) in air transportation, warehousing and storage, and trucking. We acknowledge that there likely are sub-sector industries within the other industry sectors as well that may also have elevated rates like those observed within TWU; however, we have not explored these industries.

In reporting health status results in terms of lost work-days, the addition of BLS SOII data appears to provide valuable information. While NHIS data describes the prevalence of morbidity and disability, SOII provides, in addition to the number of work-related injuries and illnesses, a rate at which these events occur.

As would be expected in an aging population and workforce, increasing disability and physical limitations generally increase with age. This is borne out in our data, which demonstrates increasing proportions of workers reporting functional limitations, hearing problems, and visual impairments with increasing age. Physical functioning difficulties (44%) and hearing difficulties (33%) are the most commonly reported limitations among all older workers. Visual impairment also increases with age, but the differences between age groups is much less compared to other disabilities. Visual screening for commercial drivers under the FMSCA Physical Qualification and Examinations program may contribute to a healthy worker effect in this sub-population [Hartenbaum, 2010; FMCSA, 2012]. Older truck and bus drivers who develop visual impairment and fail to meet FMSCA vision standards would effectively be removed from this cohort of workers and probably account, at least in part, for the lower prevalence of visual impairment observed in TWU.

TWU workers aged 65 and over experience the highest proportion of hypertension among any age group across the entire workforce; this finding corroborates research by Leigh and Du [2009] who report higher levels of hypertension in workers older than 65. Of note is our finding that 20% of TWUs middle age workers (25–64) report hypertension. Sieber et al. [2012] finds similar proportions in a recent long-haul trucker survey: 26% of the middle age drivers (aged 20–64) and 51% of the oldest drivers have hypertension. This survey also reports an overall prevalence of diabetes of 13%, about three times more than we report for all workers (3.9%). Bushnell [2011] reports elevated rates of hypertension (and depression, cardiovascular disease, and diabetes) in local and interurban passenger transit workers (i.e., Standard Industrial Classification Major Group 41 [OMB, 1987]). Solomon et al. [2004] report that long-haul truckers experience difficulty accessing healthcare services; and when truckers did see a healthcare professional, hypertension is one of the most common diagnoses. Sieber et al. [2012] also reports that about one-third of long-haul truckers have no insurance or health care plan, thus limiting access to healthcare. The high prevalence of hypertension in TWU validates the emphasis of incorporating the recognition and treatment of hypertension in wellness and occupational safety and health programs [Krueger et al., 2007; TRB, 2012]. A number of transportation industry-based health and wellness programs have demonstrated substantial cost savings in terms of employee health, workers' compensation claims, insurance costs, worker absenteeism, and worker productivity and could be implemented in other industry settings [Krueger et al., 2007]. NIOSH also has a

national program—Total Worker Health™—that translates best practices and integrative approaches to protecting and promoting health in the work-place [NIOSH, 2012b].

While the proportion of all workers and adults in the U.S. population who report being overweight or obese is elevated, the proportions among TWU workers are higher and should be of concern, particularly for the nearly half of TWUs oldest workers who report being overweight and the 30% of middle age workers reporting they are obese. Sieber et al. [2012], Apostolopoulos et al. [2010], Martin et al. [2009], Krueger et al. [2007], Wiegand et al. [2009], among others, note that commercial drivers, in particular, may experience multiple work-related factors that might play into a wide array of health-related conditions. For example, the drivers' hours of service and competitive schedules, the ergonomics of highways, truck stops, terminals, and truck cabins combined with the sedentary nature of driving and the lack of consistent physical activity may contribute to disrupted biological cycles, fatigue, sleep loss, and smoking, which, may in turn lead to obesity, diabetes, cardiovascular disease and hypertension, compared to other occupations. Sieber et al. [2012] report that, collectively, 90% of long-haul truckers are overweight or obese; the obesity figures are particularly alarming—90% among drivers 20–24, 64% in drivers 25–64, and 47% in the oldest drivers. Buxton et al. [2012] suggests that prolonged sleep restriction with concurrent circadian disruption—as might be experienced by long-haul drivers—alters metabolism and could increase the risk of obesity and diabetes. Wiegand et al. [2009] offer strong support that the U.S. Department of Transportation's recommendation that obese drivers be tested for obstructive sleep apnea is valid. Luckhaupt [2012] observed that among night shift workers, those employed in the transportation and warehousing sector are significantly more likely to report short sleep duration than night shift workers in all industries combined; NIOSH is currently developing evidence-based training programs on sleep and working hours tailored for managers and employees in industries including manufacturing, mining, nursing, retail, and trucking. More of TWUs oldest workers do not meet CDC physical activity guidelines, compared to the younger workers and the adult population. Fleming et al. [2007] estimates that approximately three-quarters of older motor vehicle operators, among other occupations, are less likely to follow recommended leisure time physical activity recommendations.

Strengths and Limitations

The NHIS is a nationally representative sample of the U.S. adult population; it includes workers 18 years of age and older, both genders, all ethnic and racial groups, and workers with and without insurance and with varying levels of education. This study is based on data abstracted from a special series of *descriptive analyses* conducted by the University of Miami Occupational Research Group under contract to NIOSH [NIOSH, 2012a]. Although the NHIS survey annually collects data from a representative sample of the U.S. adult civilian population and is a powerful surveillance tool to look at pooled data, its cross-sectional nature makes causal inference challenging. For example, although our results are suggestive, we cannot prove that the personal choices made by workers in terms of health behaviors and habits (e.g., smoking, weight status, and exercise) are causally linked to reported disease and chronic conditions such as hypertension and heart disease; although given the depth and extent of evidence for causal linkages from over 50 years of scientific

investigation it is not likely that the observed associations are totally confounded by unidentified risk factors The NHIS does not consistently collect data on occupational exposure as it relates to differing job demands across varying industries, so direct associations with occupational health effects or outcomes cannot be made. The self-report nature of the NHIS survey and potential problems with the respondent's interpretation and understanding of how questions are asked or worded may contribute to under- and over-reporting biases [Fleming et al., 2003]. For example, research suggests that people tend to under-report their weight and over-report their height leading to an underestimation of BMI [NIOSH, 2012a].

The SOII is a probability sample, rather than a census of the entire population and does not include the self-employed, private households, volunteers, or government workers. Long-term work-related injuries and illnesses and ones caused by occupational exposures are often underreported. The number of new injuries and illnesses reported in the SOII for any given year can be influenced by the level of economic activity, working conditions and work practices, worker experience and training, and number of hours worked. The BLS modified the SOII survey instrument in 2002 therefore data collected in 2002 and before was not comparable to data collected in 2003 and after. The modification of the SOII survey instrument in 2002 only allowed SOII data to be tabulated for the time period of 2003 through 2007 instead of the NHIS comparable time period of 1997 through 2003.

CONCLUSIONS

This article presents the first comprehensive review of disability and physical activity parameters, disease and chronic conditions, risky behaviors, and work-limiting injuries that may impact the overall health and well-being of millions of TWU workers over an extended period. While there are similarities between TWU, the entire U.S. work-force and the nation's adult population, review of the tabular data presented in this report highlights some TWU groups—the middle-aged and oldest workers, as well as workers of both genders—as notable high-risk demographic groups. Our findings add to the growing public health literature that suggests a number of chronic conditions such as hypertension and heart disease may be associated with obesity, smoking, and lack of physical activity; although causal associations cannot be directly inferred between injury and health and disability outcomes, only that they may co-exist at the time of data collection.

We suggest, particularly for the oldest TWU workers—many of whom might be ready to retire due to the physical demands of the job—that health and wellness goals should be focused on *treatment* of hypertension and heart disease accompanied by encouragement of healthier behaviors and more physical activity. For younger TWU workers, particularly those in their mid-to-late 20s, wellness *prevention* efforts should be directed at promoting exercise and an improved lifestyle, with the goal that they will be in a state of better health as they become older workers. Many critical components of health and wellness programs discussed in detail during the 2010 international conference on commercial truck driver health [TRB, 2012] would seem to be equally applicable to other TWU worker groups. Our study findings will inform future TWU-related research and help identify specific focus areas in support of the sector's national strategic agenda [NIOSH, 2009a]. In the future,

research should focus on selected occupations within the transportation industry, including commercial truckers and bus drivers, to determine possible causal links between personal health behaviors and habits and their potential relationships to disease and chronic conditions and on-the-job injury.

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TABLE I

Demographics of the Estimated U.S. and TWU Worker Populations for Adults 18 Years and Older, 1997–2007

	U.S. worker population			TWU super sector population		
Demographic groups	**Estimated number**	**Sample size**	**Percent (95% CI)**	**Estimated number**	**Sample size**	**Percent (95%CI)**
Overall total	126,898,030	196,924	100.0	8,317,014	12,871	100.0
Gender						
Male	68,530,792	97,768	54.0(53.7–54.3)	5,988,966	8,692	72.0(71.1–72.9)
Female	58,367,238	99,156	46.0(45.7–46.3)	2,328,048	4,179	28.0(26.6–29.4)
Race						
White	105,313,053	157,040	83.0(82.8–83.2)	6,611,023	9,726	79.5(79.3–79.8)
Black	14,056,560	27,262	111 (10.7–11.5)	1,256,182	2,401	15.1 (13.7–16.5)
Other	7,528,417	12,622	5.9(5.5–6.3)	449,809	744	5.4(3.8–7.0)
Ethnicity						
Non-Hispanic	111,862,532	163,004	88.2(88.0–88.4)	7,430,661	10,934	89.3(89.1–89.5)
Hispanic	15,035,498	33,920	11.8(11.7–11.9)	886,353	1,937	10.7(10.3–11.1)
Age group						
18–24	16,959,193	21,858	13.4(13.0–13.9)	695,810	921	8.4(6.6–10.2)
25–64	105,946,456	167,739	83.5(83.3–83.7)	7,438,262	11,623	89.4(89.2–89.6)
≥65	3,992,381	7,327	3.1 (3.0–3.2)	182,943	327	2.2 (0.6—3.8)
Education						
Less than HS graduate	14,798,890	26,367	11.7(11.3–12.1)	822,435	1,360	9.9(8.3–11.5)
HS graduate or GED	36,048,733	54,264	28.4(28.0–28.8)	2,818,202	4,222	33.9(32.5–35.3)
Some college or higher	75,434,176	115,325	59.4(59.1–59.7)	4,639,765	7,233	55.8(54.7–56.9)
Insurance						
Insured	106,279,655	161,665	83.8(83.6–84.0)	7,301,366	11,151	87.8(87.2–88.4)
Uninsured	20,282,002	34,830	16.0(15.6–16.4)	991,844	1,691	11.9(10.4–13.4)

Subgroup percentages may not total100%due to missing covariate values, missing data, or underestimates.

TABLE II

Prevalence (Percent) Estimates of Health Status, Disability, and Morbidity Among the TWU Super Sector, the U.S. Worker Population, and the U.S. Adult Population, by Age, 1997–2007

Health status, disability, and morbidity domains	U.S. adult population 2007[a]	U.S. worker population				TWU super sector			
		18–24	25–64	≥65	All	18–24	25–64	≥65	All
		(95% CI)				(95% CI)			
Health status									
Better than last year	18.4	20.6(20.1–21.1)	18.0(17.8–18.2)	14.6(13.8–15.4)	18.2(18.0–18.4)	21.7(19.0–24.4)	17.4(16.7–18.1)	12.2(8.6–15.8)	17.6(16.9–18.3)
Worse than last year	8.7	4.3(4.0–4.6)	5.5(5.4–5.6)	6.1 (5.9–6.3)	5.4(5.3–5.5)	4.6(3.3–6.0)	5.2(4.8–5.6)	6.1 (3.5–8.7)	5.2(4.8–5.6)
Self-rated health									
Excellent/good	86.7	97.3(97.1–97.5)	94.5(94.4–94.6)	89.6(89.4–89.8)	94.7(94.6–94.8)	98.8(98.1–99.5)	94.7(94.3–95.1)	87.4(83.8–91.0)	94.9(94.5–95.3)
Fair/poor	13.3	2.7(2.5–2.9)	5.5(5.4–5.6)	10.4(9.7–11.1)	5.3(5.2–5.4)	1.2(0.5–1.9)	5.3(4.9–5.7)	12.6(9.0–16.2)	5.1 (4.7–5.5)
Lost workdays in past year									
Mean lost workdays	4.0	3.1 (2.9–3.3)	4.0(3.9–4.1)	3.6(3.2–4.0)	3.9(3.8–4.0)	3.6(2.6–4.6)	5.0(4.6–5.4)	5.7(1.9–9.5)	4.9(4.5–5.3)
2–5 lost workdays	—	28.6(27.8–29.4)	26.7(26.5–26.9)	13.7(12.9–14.5)	26.5(26.3–26.7)	28.5(25.6–31.4)	26.4(25.6–27.2)	11.7(8.2–15.2)	26.3(25.5–27.1)
≥6 lost workdays	—	9.9(9.5–10.3)	11.3(11.2–11.4)	10.6(9.9–11.3)	11.1 (11.0–11.2)	9.8(7.9–11.7)	13.5(12.9–14.1)	12.4(8.8–16.0)	13.1 (12.5–13.7)
Disability and physical activity limitations									
Physical functioning limitation	14.8	11.9(11.5–12.3)	22.3(22.1–22.5)	43.7(42.0–44.8)	21.6(21.4–21.8)	10.7(8.7–12.7)	21.9(21.2–22.7)	44.3(38.9–49.7)	21.4(20.7–22.1)
Hearing difficulty	14.9	5.8(5.5–6.1)	12.3(12.1–12.5)	32.8(31.7–33.9)	12.0(11.9–12.1)	6.2(4.6–7.8)	14.0(13.4–14.6)	31.9(26.9–37.0)	13.7(13.1–14.3)
Visual impairment	10.0	5.0(4.7–5.3)	6.8(6.7–6.9)	10.0(9.3–10.7)	6.7(6.6–6.8)	3.0(1.9–4.1)	5.7(5.3–6.1)	5.8(3.3–8.3)	5.5(5.1–5.9)
Disease and chronic conditions									
Cancer	7.3	0.9(0.8–1.0)	4.0(3.9–4.1)	17.1 (16.2–18.0)	4.0(3.9–4.1)	1.2(0.5–2.0)	3.4(3.1–3.7)	17.4(13.3–21.5)	3.5(3.2–3.8)
Hypertension	23.7	4.6(4.3–4.9)	18.6(18.4–18.8)	47.5(46.4–48.6)	17.7(17.5–17.9)	7.7(6.0–9.4)	20.4(19.7–21.1)	49.2(43.8–54.6)	20.0(19.3–20.7)
Heartdisease	11.3	3.1 (2.9–3.3)	6.4(6.3–6.5)	22.7(21.8–23.7)	6.5(6.4–6.6)	2.0(1.1–2.9)	6.1 (5.7–6.5)	21.2(16.8–25.6)	6.1 (5.7–6.5)
Asthma	10.9	13.1 (12.7–13.6)	8.9(8.8–9.0)	7.9(7.3–8.5)	9.4(9.3–9.5)	14.9(12.6–17.2)	8.0(7.5–8.5)	9.6(6.4–12.8)	8.6(8.1–9.1)
Diabetes	7.8	0.7(0.6–0.8)	4.0(3.9–4.1)	12.2(11.5–13.8)	3.9(3.8–4.0)	0.1 (–0.1–0.3)	4.7(4.3–5.1)	10.7(7.4–14.1)	4.4(4.1–4.8)
Healthcare utilization									
Primary HCP not seen in 1 year or more	7.9	36.5(35.9–37.1)	29.7(29.5–29.9)	17.7(16.8–18.6)	30.2(30.0–30.4)	39.0(35.6–42.2)	29.7(28.9–30.5)	17.1 (13.0–21.2)	30.2(29.4–31.0)
Dentist not seen in 1 year or more	13.0	39.6(39.0–40.3)	33.3(33.1–33.5)	34.9(33.8–36.0)	34.2(34.0–34.4)	40.6(37.4–43.8)	33.6(32.7–34.5)	36.9(31.7–42.1)	34.2(33.4–35.0)

Health status, disability, and morbidity domains	U.S. adult population 2007[a]	U.S. worker population				TWU super sector			
		18–24	25–64	≥65	All	18–24	25–64	≥65	All
		(95% CI)				(95% CI)			
Surgery/surgical procedure in past year	—	9.0(8.6–9.4)	10.8(10.7–11.0)	17.6(16.7–18.5)	10.8(10.7–10.9)	8.5(6.7–10.3)	10.7(10.1–11.3)	18.1 (13.9–22.3)	10.7(10.2–11.2)
One or more emergency room visits in past year	20.1	24.2(23.6–24.8)	16.6(16.4–16.8)	17.2(16.3–18.1)	17.6(17.4–17.8)	24.7(21.9–27.5)	17.3(16.6–18.0)	20.5(16.1–24.9)	18.0(17.3–18.7)
Health behaviors/habits									
Smoker									
Current	19.8	27.6(27.0–28.2)	23.6(23.4–23.8)	11.3(10.6–12.0)	23.8(23.6–24.0)	24.1 (21.3–26.9)	26.0(25.2–26.8)	15.5(11.6–19.4)	25.6(24.9–26.4)
Former	21.5	7.8(7.4–8.2)	20.7(20.5–20.9)	41.3(40.2–42.4)	19.6(19.4–19.8)	8.5(6.7–10.3)	22.9(22.1–23.7)	50.6(45.3–56.0)	22.3(21.6–23.0)
Drinker									
Current	61.0	66.9(66.3–67.5)	71.3(71.1–71.5)	55.8(54.7–56.9)	70.2(70.0–70.4)	71.4(68.5–74.3)	72.7(71.9–73.5)	58.7(53.4–64.0)	72.2(71.4–73.0)
Former	14.8	4.5(4.4–4.6)	12.4(12.2–12.6)	21.4(20.5–22.3)	11.6(11.5–11.7)	3.9(2.7–5.2)	13.4(12.8–14.0)	26.0(21.3–30.8)	12.9(12.3–13.5)
Weight status (self-reported)									
Overweight	35.3	25.9(25.3–26.5)	37.9(37.7–38.1)	44.0(42.9–45.1)	36.5(36.3–36.7)	30.9(27.9–33.9)	41.3(40.4–42.2)	49.8(44.4–55.2)	40.7(39.9–41.6)
Obese	26.2	14.4(13.9–14.9)	24.2(24.0–24.4)	20.3(19.4–21.2)	22.8(22.6–23.0)	17.7(15.2–20.2)	28.6(27.8–29.4)	21.9(17.4–26.4)	27.6(26.8–28.4)
Do not meet CDC physical activity guidelines	61.5	60.8(60.2–61.5)	66.4(66.2–66.6)	74.2(73.2–75.2)	65.9(65.7–66.1)	57.9(54.7–61.1)	67.2(66.4–68.1)	77.7(73.2–82.2)	66.7(65.9–67.5)

—,data not available.

[a]Summary Health Statistics for U.S. Adults, NHIS, 2007 [NCHS, 2009].

TABLE III

Prevalence (Percent) Estimates of Health Status, Disability, and Morbidity Among the TWU Super Sector, the U.S. Worker Population, and the U.S. Adult Population, by Gender and Race, 1997–2007

Health status,disability, and morbidity domains	U.S.adult population 2007[a]	U.S. worker population					TWU super sector				
		Gender		Race			Gender		Race		
		Male	Female	White(95%CI)	Black	Other	Male	Female	White(95%CI)	Black	Other
Health status											
Better than last year	18.4	17.4(17.2–17.6)	19.2(19.0–19.5)	17.9(17.7–18.1)	19.8(19.3–20.3)	20.0(19.3–20.7)	16.6(15.8–17.4)	20.2(19.0–21.4)	17.0(16.3–17.8)	19.0(17.4–20.6)	22.8(19.8–25.8)
Worse than last year	8.7	4.8(4.7–4.9)	6.1 (6.0–6.3)	5.4(5.3–5.5)	5.2(4.9–5.5)	5.6(5.2–6.0)	4.8(4.4–5.3)	6.2(5.5–6.9)	5.4(5.0–5.9)	4.9(4.0–5.8)	3.3(2.0–4.6)
Self-rated health											
Excellent/good	86.7	95.0(94.9–95.1)	94.3(94.2–94.4)	95.1 (95.0–95.2)	92.1 (91.8–92.4)	93.9(93.5–94.3)	95.0(94.5–95.5)	94.5(93.8–95.2)	95.1 (94.7–95.5)	93.8(92.8–94.8)	94.7(93.1–96.3)
Fair/poor	13.3	5.0(4.9–5.1)	5.7(5.6–5.8)	4.9(4.8–5.0)	7.9(7.6–8.2)	6.1 (5.7–6.5)	5.0(4.5–5.5)	5.5(4.8–6.2)	4.9(4.5–5.3)	6.2(5.2–7.2)	5.3(3.7–6.9)
Lost work days in past year											
Mean lost work days	4.0	3.5(3.4–3.6)	4.3(4.2–4.4)	3.8(3.7–3.9)	4.5(4.3–4.7)	3.4(3.1–3.7)	4.3(3.9–4.7)	6.5(5.6–7.4)	4.7(4.3–5.1)	6.1 (5.2–7.0)	4.3(2.9–5.7)
2–5 lost work days	—	23.8(23.5–24.1)	29.8(29.5–30.1)	26.8(26.6–27.0)	25.9(25.4–26.4)	23.5(22.8–24.2)	24.9(24.0–25.8)	29.7(28.3–31.1)	26.7(25.8–27.6)	24.3(22.6–26.0)	24.9(21.8–28.0)
≥6 lost work days	—	9.4(9.2–9.6)	13.0(12.8–13.2)	10.9(10.8–11.1)	12.9(12.5–13.3)	9.4(8.9–9.9)	11.5(10.8–12.2)	17.2(16.1–18.3)	12.6(11.9–13.3)	16.2(14.7–17.7)	12.2(9.9–14.6)
Disability and physical activity limitations											
Physical functioning limitation	14.8	18.2(18.0–18.4)	25.6(25.3–25.9)	22.4(22.2–22.6)	18.9(18.4–19.4)	15.9(15.3–16.5)	19.6(18.8–20.4)	26.1 (24.8–27.4)	22.9(22.1–23.7)	15.4(14.0–16.8)	16.3(13.7–19.0)
Hearing difficulty	14.9	14.6(14.4–14.8)	9.0(8.8–9.2)	13.2(13.0–13.4)	5.6(5.3–5.9)	7.7(7.2–8.2)	15.7(14.9–16.5)	8.6(7.8–9.5)	15.5(14.8–16.2)	5.3(4.4–6.2)	11.1 (8.8–13.4)
Visual impairment	10.0	5.5(5.4–5.6)	8.0(7.8–8.2)	6.7(6.6–6.8)	6.9(6.6–7.2)	5.6(5.2–6.0)	4.7(4.3–5.1)	7.7(6.9–8.5)	5.6(5.1–6.1)	4.4(3.6–5.2)	6.8(5.0–8.6)
Disease and chronic conditions											
Cancer	7.3	3.1 (3.0–3.2)	5.0(4.9–5.1)	4.4(4.3–4.5)	1.8(1.6–2.0)	1.5(1.3–1.7)	3.1 (2.7–3.5)	4.6(4.0–5.2)	4.0(3.6–4.4)	1.6(1.1–2.1)	1.6(0.7–2.5)
Hypertension	23.7	18.3(18.1–18.5)	17.0(16.8–17.2)	17.2(17.0–17.4)	23.5(23.0–24.0)	13.9(13.3–14.5)	21.5(20.6–22.4)	16.1 (15.0–17.2)	19.7(18.9–20.5)	22.6(20.9–24.3)	16.6(13.9–19.3)
Heart disease	11.3	6.5(6.4–6.7)	6.5(6.4–6.7)	6.9(6.8–7.0)	5.0(4.7–5.3)	3.9(3.6–4.2)	6.0(5.5–6.5)	6.2(5.5–6.9)	6.5(6.0–7.0)	4.7(3.9–5.6)	3.5(2.2–4.8)
Asthma	10.9	8.1 (7.9–8.3)	11.0(10.8–11.2)	9.5(9.4–9.7)	9.6(9.3–10.0)	7.9(7.4–8.4)	7.5(7.0–8.1)	11.3(10.3–12.3)	8.5(8.0–9.0)	8.6(7.5–9.7)	9.4(7.3–11.5)
Diabetes	7.8	4.1 (4.0–4.2)	3.6(3.5–3.7)	3.6(3.5–3.7)	5.6(5.3–5.9)	4.2(3.9–4.6)	4.7(4.3–5.1)	3.5(2.9–4.1)	4.2(3.8–4.6)	5.3(4.4–6.2)	5.0(3.4–6.6)
Healthcare utilization											
Primary HCP not seen in 1 year or more	7.9	41.3(41.0–41.6)	17.2(17.0–17.4)	29.9(29.7–30.1)	28.7(28.2–29.2)	37.3(36.5–38.1)	36.4(35.4–37.4)	14.2(13.1–15.3)	30.2(29.3–31.1)	28.3(26.5–30.1)	35.4(32.0–38.8)
Dentist not seen in 1 year or more	13.0	38.6(38.3–38.9)	29.0(28.7–29.3)	33.0(32.8–33.2)	40.2(39.6–40.8)	39.3(38.5–10.2)	37.0(36.0–38.0)	27.0(25.7–28.4)	33.2(32.3–34.1)	37.8(35.9–39.7)	38.9(35.4–42.4)
Surgery/surgical procedure in past year	—	9.0(8.8–9.2)	12.8(12.6–13.0)	11.3(11.1–11.5)	8.5(8.2–8.8)	6.9(6.6–7.3)	9.7(9.1–10.3)	13.3(12.3–14.3)	11.3(10.7–11.9)	8.3(7.2–9.4)	8.1 (6.1–10.1)
One or more emergency room visits in past year	20.1	16.6(16.4–16.8)	18.8(18.6–19.0)	17.1 (16.9–17.3)	23.4(22.9–23.9)	14.5(13.9–15.1)	17.1 (16.3–17.9)	20.1 (18.9–21.3)	17.2(16.5–18.0)	22.0(20.3–23.7)	18.0(15.2–20.8)
Health behaviors/habits											

Health status,disability, and morbidity domains	U.S.adult population 2007[a]	U.S. worker population					TWU super sector				
		Gender		Race			Gender		Race		
		Male	Female	White(95%CI)	Black	Other	Male	Female	White(95%CI)	Black	Other
Smoker											
Current	19.8	25.7(25.4–26.0)	21.5(21.2–21.8)	24.4(24.2–24.6)	21.6(21.1–22.1)	18.6(17.9–19.3)	26.4(25.5–27.3)	23.6(22.3–24.9)	26.9(26.0–27.8)	21.2(19.6–22.8)	19.3(16.5–22.1)
Former	21.5	21.7(21.4–22.0)	17.2(17.0–17.4)	21.1 (20.9–21.3)	12.1 (11.7–12.5)	13.6(13.0–14.2)	23.9(23.0–24.8)	18.2(17.0–19.4)	24.0(23.2–24.9)	15.3(13.9–16.7)	16.0(13.4–18.6)
Drinker											
Current	61.0	74.0(73.7–74.3)	65.7(65.4–66.0)	73.0(72.8–73.2)	56.5(55.9–57.1)	57.0(56.1–57.9)	73.2(72.3–74.1)	69.8(68.4–71.2)	75.1 (74.2–76.0)	59.9(57.9–61.9)	63.6(60.1–67.1)
Former	14.8	11.8(11.6–12.0)	11.5(11.3–11.7)	11.5(11.3–11.7)	13.3(12.9–13.7)	9.9(9.4–10.4)	13.6(12.9–14.3)	11.2(10.2–12.2)	12.9(12.2–13.6)	14.4(13.0–15.8)	9.7(7.6–11.8)
Weight status											
Overweight	35.3	44.4(44.1–44.7)	26.9(26.6–27.2)	36.8(36.6–37.0)	37.0(36.4–37.6)	32.1 (31.3–32.9)	45.6(44.6–46.7)	27.5(26.2–28.9)	40.8(39.8–41.8)	41.7(39.7–43.7)	35.8(32.4–39.2)
Obese	26.2	23.5(23.2–23.8)	21.9(21.6–22.3)	22.1 (21.9–22.3)	32.3(31.7–32.9)	14.5(13.9–15.1)	29.4(28.4–30.4)	22.8(21.5–24.1)	27.3(26.4–28.2)	30.7(28.9–32.5)	22.8(19.8–25.8)
Do not meet CDC physical activity guidelines	61.5	64.0(63.7–64.3)	68.1 (67.8–68.4)	64.8(64.6–65.0)	71.6(71.1–72.1)	70.1 (69.3–70.9)	66.0(65.0–67.0)	68.4(67.0–69.8)	66.0(65.1–66.9)	69.3(67.5–71.1)	68.9(65.6–72.2)

—,data not available.

[a]Summary Health Statistics for U.S. Adults, NHIS, 2007 [NCHS, 2009].

TABLE IV

Number and Rate (Per 10,000 Workers) of Nonfatal Occupational Injury and Illness Cases Involving Days Away From Work by Age for theTWU Super Sector and the U.S. Workforce, 2003–2007

Age group	TWU super sector	U.Sworkerpopulation
16–24		
Injuries	51,350	872,440
Rate	240.3	97.8
25–64		
Injuries	556,640	5,070,860
Rate	241.6	119.7
≥65		
Injuries	10,500	125,680
Rate	156.6	81.5
Totals		
Injuries	618,490	6,680,980
Rate	239.3	114.9